

### NUCLEAR REGULATORY COMMISSION REGION IV

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Walnut Creek Field Office 1450 Maria Lane Walnut Creek, California 94596–5368

AUG 1 2 1997

Les Case Corporate Engineer Interstate Nuclear Services 811 South Edisto Avenue Columbia, South Carolina 29205

SUBJECT: DECOMMISSIONING FUNDING PLAN

Dear Mr. Case:

We have completed our review of your June 2, 1997, letter enclosing the revised Decommissioning Cost Estimating Tables for your Royersford, Portsmouth and Honolulu facilities. Your new estimates appear to be acceptable and we have no questions at this time. Please instruct your bank to make the necessary changes to the Letter of Credit and have them forward the updated document to this office.

If you have questions concerning this letter, please contact this office.

Sincerely,

James L. Montgomery Senior Health Physicist

Materials Branch

Docket No. 030-06869 License No. 53-13668-01 Control No. 572513

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(FOR LFMS USE) INFORMATION FROM LTS BETWEEN: Program Code: 03218 Status Code: 0 Fee Category: 6A Exp. Date: 20041231 Fee Comments: 97 Decom Fin Assur Redd: Y License Fee Management Branch, ARM Regional Licensing Sections 97 JUN 15 AH 11:35 LICENSE FEE TRANSMITTAL A. REGION IV - WEFO APPLICATION ATTACHED Applicant/Licensee: Received Date: Docket No: Control No: License No: Action Type: INTERSTATE NUCLEAR SERV. CORP. 970606 3006869 572513 53-13668-01 Fin. Assurance 2. FEE ATTACHED Amount: Check No.: 3. COMMENTS B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03715 enter 1. Fee Category and Amount 2. Correct Fee Paid Application may be processed for: I marcial assaurance Renewal License 3. OTHER

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SRC FORM 218 REV-D 8/93 [WP/Ldc-RIV]



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June 2, 1997

United States Nuclear Regulatory Commission Region IV 1450 Maria Lane Walnut Creek, California 94596

Attn:

Beth Prange

Senior Health Physicist (Licensing)

Nuclear Materials and Fuel Fabrication Branch

Re: License 37-23341-01 Royersford, PA
Re: License 39-19727-01 Portsmouth, VA
Re: License 53-13668-01 Honolulu, HI

\$321,967 \$246,768

\$642,583

\$1,211,318

Dear Ms. Prange:

In order to account for inflation and changes to our facilities, we periodically review of our Decommissioning Funding Plan and update the decommissioning cost estimates. Attached are the new estimates for the INS nuclear laundry facilities referenced above.

As you know, the surety we provide to your agency for future decommissioning takes the form of a bank Letter of Credit. This instrument is currently in force and is automatically renewed on its anniversary date, without adjustment to the amount, unless we notify the bank that your agency has authorized that it be amended.

Please review the attached information. When we get your written approval, we will instruct our bank to make the necessary changes to the Letter of Credit. They will then send it to your agency as soon as it is updated. Please call Mike Fuller or me if there are any questions.

Sincerely,

Les Case

Corporate Engineer

INS Corporation

cc: M. Fuller

H. Murphy

Attachment: Cost estimate in NRC-recommended format

572513

# INS Corp. Royersford, PA COST ESTIMATING TABLES 05/29/97

Page F-1 Process 3

# 1. Planning and Preparation

| Task | Super-<br>visor   | Table 1<br>Work Days<br>Foreman | H.P. | Clerical | Calendar<br>Days | Total<br>Cost |
|------|---|---------------------------------|------|----------|------------------|---------------|
| 1.   | Prepare 5 Documentation for Regulatory Agencies   | 10                              |      | 5        | 10               | \$7,191       |
| 2.   | Submit 3<br>Decommissioning<br>Plan to regulators   | 10                              |      | 2        | 10               | \$5,682       |
| 3.   | Develop 4<br>Work Plans   | 8                               | 3    | 1        | 8                | \$6,607       |
| 4.   | Procure<br>Special Equip-<br>ment   | 5                               |      |          | 5                | \$1,887       |
| 5.   | Staff Training  | 2                               | 5    | 2        | 5                | \$3,176       |
| 6.   | Study 4 of Radiological Condition of the Facility (Including soil and tailings analysis or ground- water analysis, if applicable) | 12                              | 12   | 1        | 12               | \$11,962      |
| 7.   | Other   |                                 |      |          |                  |               |
| 8.   | Total 16  | 47                              | 20   | 11       | 50               | \$36,504      |

Table 2

| Unit Cost for Worke | Worker Cost Per |               |           |       |
|---------------------|-----------------|---------------|-----------|-------|
| Position Basic Sa   | alaries (\$/yr) | Overhead Rate | Year      | Day   |
| Supervisor          | \$76,000        | 78%           | \$135,280 | \$541 |
| Foreman             | \$53,000        | 78%           | \$94,340  | \$377 |
| Craftsman           | \$33,000        | 78%           | \$58,740  | \$235 |
| Technician          | \$30,000        | 78%           | \$53,400  | \$214 |
| Health Physicist    | \$60,000        | 78%           | \$106,800 | \$427 |
| Laborer             | \$21,000        | 78%           | \$37,380  | \$150 |
| Clerical            | \$20,000        | 78%           | \$35,600  | \$142 |

### 2. Decontamination/Dismantling of Radioactive Facility Components \*

For details, see Waste Volume Summary

Table 3 Work Days

| Super-    | Fore-         | Tech-  | La-  | Calendar   | Total   |
|-----------|---------------|--|--|--|---|
| visor     | man           | nicians  | borer  | Days   | Cost  |
|           | 2.2           | 4.3  | 6.5  | 2.2  | \$2,808   |
|           | 3.5           | 7.0  | 10.5   | 3.5  | \$4,535   |
|           | 45.7          | 91.4   | 137.2  | 45.7   | \$59,241  |
| (D)       | 7.2           | 14.4   | 21.6   | 7.2  | \$9,330   |
|           | 3.2           | 6.4  | 9.6  | 3.2  | \$4,155   |
|           | 14.9          | 29.8   | 44.8   | 14.9   | \$19,339  |
|           | 0.0           | 0.0  | 0.0  | 0.0  | \$0   |
|           |               |  |  |  |   |
|           | 7.5           | 15.0   | 22.5   | 7.5  | \$9,723   |
|           | 3.1           | 6.3  | 9.4  | 3.1  | \$4,081   |
| Pipe (D)  | 9.9           | 19.7   | 29.6   | 9.9  | \$12,785  |
| (D)       | 9.3           | 18.7   | 28.0   | 9.3  | \$12,095  |
| & Pit (W) | 4.6           | 9.2  | 13.8   | 4.6  | \$5,961   |
|           | visor (D) (D) | visor man  2.2 3.5 45.7 7.2 3.2 14.9 0.0  7.5 3.1 Pipe (D) 9.9 (D) 9.3 | visor man nicians  2.2 4.3 3.5 7.0 45.7 91.4 7.2 14.4 3.2 6.4 14.9 29.8 0.0 0.0  7.5 15.0 3.1 6.3 Pipe (D) 9.9 19.7 (D) 9.3 18.7 | visor man nicians borer  2.2 4.3 6.5 3.5 7.0 10.5 45.7 91.4 137.2 (D) 7.2 14.4 21.6 3.2 6.4 9.6 14.9 29.8 44.8 0.0 0.0 0.0  7.5 15.0 22.5 3.1 6.3 9.4 Pipe (D) 9.9 19.7 29.6 (D) 9.3 18.7 28.0 | visor man nicians borer Days  2.2 4.3 6.5 2.2 3.5 7.0 10.5 3.5 45.7 91.4 137.2 45.7 (D) 7.2 14.4 21.6 7.2 3.2 6.4 9.6 3.2 14.9 29.8 44.8 14.9 0.0 0.0 0.0 0.0  7.5 15.0 22.5 7.5 3.1 6.3 9.4 3.1 Pipe (D) 9.9 19.7 29.6 9.9 (D) 9.3 18.7 28.0 9.3 |

<sup>\*(</sup>D): Decontaminate most of the component to unrestricted release levels.

<sup>\*(</sup>W): Package the component and dispose at a low-level waste site.

### Table 3 (continued) Work Days

| Task   | Super-<br>visor | Fo o-<br>man | Tech-<br>nicians | La-<br>borer | Calendar<br>Days | Total<br>Cost |
|--|-----------------|--------------|------------------|--------------|------------------|---------------|
| Decon/Dis-<br>mantle     Building  |                 |              |                  |              |                  |               |
| -Floors and Walls  |                 | 38.7         | 77.4             | 116.1        | 38.7             | \$50,136      |
| 4. Decon/Dis-<br>mantle<br>Service<br>Facilities   |                 |              |                  |              |                  |               |
| -Maintenance Shop -Decontamination -Ventilation Systems -Other   |                 | See Page     | F-2              |              |                  |               |
| 5. Decon/Dismantle Waste Treatment Facilities and Storage Areas on the Site (Including exhume and package contaminated soil) |                 | See Page     | F-2              |              |                  |               |
| -Remove Sewer<br>Discharge Pipe<br>Line to First<br>Manhole  |                 | 2.1          | 4.2              | 6.4          | 2.1              | \$2,752       |

| INS Corp.<br>Royersford<br>05/29/97 | , PA                       | V            | Table 3<br>Work Days | (continued            | 1)         |          | Page F-4<br>Process 3 |
|-------------------------------------|----------------------------|--------------|----------------------|-----------------------|------------|----------|-----------------------|
|                                     |                            | Super-       | Fore-                | Tech-                 | La-        | Calendar | Total                 |
| Task                                |                            | visor        | man                  | nicians               | borer      | Days     | Cost                  |
|                                     | for complia<br>and remonit |              | 27                   | 54                    | 54         | 27       | \$30,951              |
| 7. Total of                         | Table 3                    |              |                      |                       |            | 179      | \$227,891             |
|                                     |                            |              | Table 4              |                       |            |          |                       |
| Equipment                           | /Supply                    |              |                      |                       | Quantity   | Rate     | Cost                  |
|                                     | =====                      |              |                      |                       | =====      |          | =====                 |
| Mobile Dad                          | con Unit (Tra              | ansport, Co  | nsumable             | es)                   | 1          | 14000    | \$14,000              |
| Plasma arc                          | welder rent                | tal per mor  | ith                  |                       | 4          | 350      | \$1,400               |
| Air compre                          | ssor (Sullain              | 185) renta   | l per mon            | th                    | 5          | 650      | \$3,250               |
| Five-head                           | floor scabble              | er rental pe | r week               |                       | 4          | 450      | \$1,800               |
| Hand scab                           | bler (needle               | scaler) pu   | rchase               |                       | 1          | 350      | \$350                 |
| HEPA Vac                            | uum Purcha                 | se           |                      |                       | 1          | 2200     | \$2,200               |
| Dozer with                          | operator pe                | r hour       |                      |                       | 40         | 75       | \$3,000               |
|                                     |                            |              |                      |                       |            |          |                       |
| Total Equip                         | oment Renta                | al and Purc  | hase                 |                       |            |          | \$26,000              |
| 3. Packag                           | ing, Shippin               | g, and Disj  | posal of R           | adioactive            | Wastes     |          |                       |
|                                     |                            |              | Table 5              |                       |            |          |                       |
| Class A                             |                            |              | Table 5              |                       | Unit       |          | Total                 |
| (unstable)                          | Volume                     | No. of       |                      | Type of               | Cost of    |          | Container             |
| Waste                               |                            | Containers   |                      | Container             |            | ar       | Cost                  |
| 11777                               | ( 4)                       |              |                      | Communici             | Cornain    | 21       | 0031                  |
| Total                               | 47                         | 18           |                      | B-25                  | \$300      |          | \$5,400               |
|                                     |                            |              | Table 6              |                       |            |          |                       |
| Waste                               |                            | Unit         |                      |                       |            |          |                       |
| Type=                               |                            | Cost for     |                      | Dound Tri             |            |          | Trans                 |
| Class A                             | No. of                     | Shipping     |                      | Round Tri<br>Distance |            |          | Trans-<br>portation   |
| unstable                            | Shipment                   | incl. drive  |                      | Shipped               | Vendor     |          | Cost                  |
| 0                                   |                            | 00.00        |                      |                       |            |          |                       |
| Soil                                | 2                          | \$2.00       | per mile             | 4498                  | Envirocare | 9        | \$17,992              |
| Eqpt                                | 1                          | \$2.00       | per mile             | 1242                  | MSC        |          | \$2,484               |
| Testel                              |                            |              |                      |                       |            |          |                       |
| Total                               | 3                          |              |                      |                       |            |          | \$20,476              |

| INS Corp   |                             |              |                    |                             |           |                       | Page F-5      |
|------------|-----------------------------|--------------|--------------------|-----------------------------|-----------|-----------------------|---------------|
| 05/29/97   | d, PA                       |              | Table 7            |                             |           |                       | Process 3     |
|            | rial Charge,<br>rial Vendor | including al | l fees             |                             |           | \$3,180<br>Envirocare | perm^3        |
|            | Instable Wa<br>Concrete Ru  | 10. 1.30     |                    | Instable Wa<br>nt sent to W | 130.00    | essor                 |               |
| Burial     | Unit                        | Total        | Approx             | Approx                      | Actual    |                       |               |
| Volume     | Cost of                     | Burial       | Volume             | Density                     | Weight    | Rate                  | Charge        |
| (m ^ 3)    | Burial                      | Cost         | (m ^ 3)            | (lb/m ^ 3)                  | (lbs)     | (\$/lb)               | (\$)          |
| 47.3       | \$3,180                     | \$150,564    | 44                 | 500                         | 21849     | \$1.40                | \$30,588      |
| Direct bu  |                             |              | No conta           | iner needed                 | for equip | ment.                 |               |
| No proce   | ssing                       |              |                    | Lab Waste                   | Analysis  |                       | \$10,000      |
|            |                             | Total: Bury  | , Process,         | Lab Analys                  | is        |                       | \$191,152     |
|            |                             |              |                    |                             |           |                       |               |
| 4. Resto   | ration of Cor               | ntaminated / | Areas of F         | acility Groun               | nd        |                       |               |
|            |                             |              | Table 8<br>Work Da | ys                          |           |                       |               |
| Task       |                             | Sup'visor    | Foreman            | H.P.                        | Clerical  | Calendar<br>Days      | Total<br>Cost |
| Backfill a | nd Restore                  | Site         | 5                  | 5                           |           | 5                     | \$3,204       |
|            |                             |              |                    |                             |           |                       |               |

|                   |           | Table 9<br>Work Days |      |          | Calendar | Total   |
|-------------------|-----------|----------------------|------|----------|----------|---------|
| Task              | Sup'visor | Foreman              | H.P. | Clerical | Days     | Cost    |
| Survey and Report |           | 8                    | 3    | 3        | 8        | \$3,439 |

5. Final Radiation Survey

# 6. Site Stabilization, Long-Term Surveillance (if applicable)

### Table 10 Work Days

| Task                | Supervisor                  | Foreman      | Clerical | Calendar<br>Days | Total<br>Cost |  |
|---------------------|-----------------------------|--------------|----------|------------------|---------------|--|
| Table 10 is not app | blicable. Site will be from | ee released. |          |                  | \$0           |  |

# Summary:

| Table 1:  | Planning and Preparation            | \$36,504  |
|-----------|-------------------------------------|-----------|
| Table 3:  | Dismantling and Decontamination     | \$227,891 |
| Table 4:  | Equipment Rental                    | \$26,000  |
| Table 5:  | Containers for Radwaste             | \$5,400   |
| Table 6:  | Transportation of Radwaste          | \$20,476  |
| Table 7:  | Waste Processing/Disposal           | \$191,152 |
| Table 8:  | Site Restoration                    | \$3,204   |
| Table 9:  | Final Radiation Survey              | \$3,439   |
| Table 10: | Site Stabilization and Surveillance | \$0       |
|           |                                     |           |
|           | Sub Total                           | \$514,066 |
|           | Contingency (25%)                   | \$128,517 |
|           | Final Total                         | \$642,583 |
|           |                                     |           |

| Prod | ess 1 | Applied to Soil, Concrete, Rubble           | Calendar<br>Days | Calendar<br>Days | Waste (m ^ 3) | Waste (m ^ 3) |
|------|-------|---|------------------|------------------|---------------|---------------|
| Qty  | Unit  | Component                                   | per unit         | Total            | per Unit      | Total         |
| ==   | ==    |   |                  |                  |               |               |
| -11  | m     | Concrete Drain Trenches & Soil Under        | 0.200            | 2.20             | 0.290         | 3.19          |
| 49   | m     | Soil Adjacent to Buried Sewer Line          | 0.030            | 1.47             | 0.050         | 2.45          |
| 74   | m     | Soil Adjacent to Sink Drains Under Floor    | 0.030            | 2.22             | 0.015         | 1.11          |
| 18   | m^2   | Concrete Pit Wall and Soil Behind (Note 5)  | 0.100            | 1.80             | 0.150         | 2.70          |
|      |       | Concrete Pit Bottom and Soil Under (Note 5) | 0.150            | 0.60             | 0.500         | 2.00          |
|      |       | Wall Area Likely Needing Decon (Note 1)     | 0.015            | 12.45            | 0.001         | 0.83          |
|      |       | Concrete Floor & Soil Underneath (Note 2)   | 0.030            | 13.80            | 0.060         | 27.60         |
|      |       | Conc. Floor, Surface Contam Only (Note 3)   | 0.010            | 12.44            | 0.006         | 7.46          |
|      |       | Sand from Sludge Drying Tanks               | 0.100            | 0.00             | 1.000         | 0.00          |
|      |       |   |                  |                  |               |               |
|      |       |   |                  | 46.98            |               | 47.34         |
|      |       |   |                  | Davs             |               | m^3           |

À

|     |    | Applied to Equipment                     | Calendar | Calendar | Waste    | Waste  |
|-----|----|--|----------|----------|----------|--------|
|     |    | Arit Blast or Power Wash Decon           | Days     | Days     | Pounds   | Pounds |
|     |    | Component                                | per unit | Total    | per Unit | Total  |
| === | == |  | ====     |          |          | ====   |
| 3   | ea | Large Washers, >200 lbs Cap'y            | 5.417    | 16.25    | 1760     | 5280   |
|     | ea | Small Washers, <= 200 lbs Cap'y          | 3.233    | 6.47     | 560      | 1120   |
| 3   | ea | Large Dryers, >200 lbs Cap'y             | 5.500    | 16.50    | 1360     | 4080   |
| 2   | ea | Small Dryers, <= 200 lbs Cap'y           | 3.250    | 6.50     | 260      | 520    |
| 1   | ea | HEPA Exhaust Fans                        | 0.167    | 0.17     | 0        | 0      |
| 1   | ea | Sorting Hoods                            | 2.167    | 2.17     | 500      | 500    |
| 7   | ea | Laundry Monitors (ALM)                   | 1.233    | 8.63     | 140      | 980    |
| 1   | ea | HEPA Filter Housings with Plenum         | 2.167    | 2.17     | 340      | 340    |
| 1   | ea | Shaker Screen Water Filters (Note 6)     | 1.125    | 1.12     | 300      | 300    |
| 1   | ea | Compactors                               | 1.125    | 1.12     | 220      | 220    |
| 3   | ea | Floor Scales                             | 1.083    | 3.25     | 70       | 210    |
| 5   | ea | Personnel Monitors                       | 0.083    | 0.17     | 0        | 0      |
| 3   | ea | Lint Collectors, Dry Type (Note 4)       | 1.167    | 3.50     | 110      | 330    |
| 1   | ea | Bag or Respirator Dryers                 | 0.625    | 0.62     | 60       | 60     |
| 3   | ea | Small Metal Tanks <600 gal               | 0.583    | 1.75     | 165      | 494    |
| 0   | ea | Medium Metal Tanks 600-3000 gal          | 1.167    | 0.00     | 482      | 0      |
| 0   | ea | Large Metal Tanks >3000 gal (Note 5)     | 2.333    | 0.00     | 884      | 0      |
| 1   | ea | Tanks, Poly or Fiberglass, <600 gal      | 0.583    | 0.58     | 42       | 42     |
| 0   | ea | Tanks, Poly or Fiberglass, 600-3000 gal  | 1.167    | 0.00     | 122      | 0      |
| 3   | ea | Tanks, Poly or Fiberglass, >3000 gal     | 2.333    | 7.00     | 223      | 670    |
| 1   | ea | Conveyors                                | 1.125    | 1.12     | 25       | 25     |
| 8   | ea | Pumps                                    | 0.067    | 0.53     | 100      | 800    |
| 27  | ea | Lab Benches, Sort & Fold Tables          | 0.267    | 7.20     | 4        | 108    |
| 0   | ea | Sludge Drying Sand Bed (excl. sand)      | 0.667    | 0.00     | 626      | 0      |
| 1   | ea | Sludge Dryer with Filter Press           | 1.208    | 1.21     | 1920     | 1920   |
| 24  | ea | HEPA Filters, Metal Frame 24x24x12       | 0.034    | 0.82     | 8        | 192    |
| 0   | ea | Mobile Units, 40' (excl. eqpt.)          | 6.333    | 0.00     | 420      | 0      |
| 183 | m  | Process Ductwork                         | 0.041    | 7.50     | 12       | 2196   |
| 49  |    | Buried Sewer Pipe (excl. soil)           | 0.013    | 0.65     | 18       | 882    |
| 210 |    | In-plant Wastewater Pipe                 | 0.033    | 7.00     | 1        | 210    |
| 74  |    | Sink Drain Lines Under Floor (excl soil) | 0.013    | 0.99     | 5        | 370    |
|     |    | Elim Elim Chies Charling (excisell)      | 0.013    | =====    | 0        |        |
|     |    |  |          | 105.00   |          | 21940  |
|     |    |  |          |          |          | 21849  |
|     |    |  |          | Days     |          | lbs    |

#### Notes:

- 1 Walls likely needing decontamination typically include portions of these rooms: Water Treatment, Wash Room, Tank Farm The walls often need decon only on the low parts.
- 2 Rooms likely to require removal of concrete slab and soil underneath typically include parts of these rooms: Water Treatment, Waste Storage, Sort Room, Wash Room, Tank Farm, Tank Room
- 3 Rooms likely to require surface decontamination of concrete slab typically include these rooms: Storage, Loading Dock, Production Room, Mezzanine, Lab, Office
- 4 Count each wet lint collector as two dry lint collectors.
- 5 Count special tanks as follows: Morris lamella=2 large steel tanks. Columbia lamella=1 large steel tank. Morris stainless steel pit=1 large and one medium steel tank. Non stainless steel pits are to be counted as concrete pits (assumed to leak).
- 6 If shaker screen has an integral tank, count that tank as one medium steel tank.

### Process Descriptions:

Process 1: 4-person team. Remove equipment. Cut only as needed to help load it into the van. Ship to a waste segregator and processor. Charged by the pound.

Process 2: 4-person team. Remove and strip equipment in preparation for metal melt, removing controls, motor windings, and non-metallics. Ship to a metal melt facility.

Process 3: 6-person team. Remove and strip equipment; cut metal pieces into small accessible parts suitable for introduction into the mobile grit blaster and/or power washer. Survey and free release parts that are clean; ship remainder to waste processor or metal melt vendor.

INS Corp. 05/29/97

# INS Corp. APPENDIX F Portsmouth, VA COST ESTIMATING TABLES

Page P. FD Process 1 97 JUL -9 AM 10: 06

1. Planning and Preparation

| T | a | 6 | 0 | 1 |     |
|---|---|---|---|---|-----|
|   |   |   |   |   | 1/0 |

|      |  |   | Work Days |      |          |                  |               |
|------|--|---|-----------|------|----------|------------------|---------------|
| Task |  | Super-<br>visor                                   | Foreman   | H.P. | Clerical | Calendar<br>Days | Total<br>Cost |
| 1.   | Prepare<br>Documenta<br>for Regulate<br>Agencies   |   | 10        |      | 5        | 10               | \$7,191       |
| 2.   | Submit<br>Decommiss<br>Plan to regu  | -   | 10        |      | 2        | 10               | \$5,682       |
| 3.   | Develop<br>Work Plans  | 4   | 8         | 3    | 1        | 8                | \$6,607       |
| 4.   | Procure<br>Special Equ<br>ment   | uip-  | 5         |      |          | 5                | \$1,887       |
| 5.   | Staff Trainir  | ng  | 2         | 5    | 2        | 5                | \$3,176       |
| 6.   | Study of Radiolog Condition of Facility (Incomo) soil and tail analysis or water analy applicable) | of the<br>cluding<br>lings<br>ground-<br>rsis, if | 12        | 12   | 1        | 12               | \$11,962      |
| 7.   | Other  |   |           |      |          |                  |               |
| 8.   | Total  | 16  | 47        | 20   | 11       | 50               | \$36,504      |

| Unit Cost for Worke | ers (Independent C | Contractors)  | Worker Co | st Per |
|---------------------|--------------------|---------------|-----------|--------|
| Position Basic Sa   | alaries (\$/yr)    | Overhead Rate | Year      | Day    |
| Supervisor          | \$76,000           | 78%           | \$135,280 | \$541  |
| Foreman             | \$53,000           | 78%           | \$94,340  | \$377  |
| Craftsman           | \$33,000           | 78%           | \$58,740  | \$235  |
| Technician          | \$30,000           | 78%           | \$53,400  | \$214  |
| Health Physicist    | \$60,000           | 78%           | \$106,800 | \$427  |
| Laborer             | \$21,000           | 78%           | \$37,380  | \$150  |
| Clerical            | \$20,000           | 78%           | \$35,600  | \$142  |

2. Decontamination/Dismantling of Radioactive Facility Components \*

For details, see Waste Volume Summary

Table 3 Work Days

|                        | Super-    | Fore- | Tech-   | La-   | Calendar | Total   |
|------------------------|-----------|-------|---------|-------|----------|---------|
| 1. Decon/dismantle:    | visor     | man   | nicians | borer | Days     | Cost    |
| Sorting Hoods (W)*     |           | 0.5   |         | 1.5   | 0.5      | \$413   |
| Lint Collectors (W)    |           | 0.0   |         | 0.0   | 0.0      | \$0     |
| Washers & Dryers (W    | )         | 3.0   |         | 9.0   | 3.0      | \$2,478 |
| Lab & Work Benches     | (W)       | 0.6   |         | 1.8   | 0.6      | \$496   |
| 3ink Drain (W)         |           | 0.1   |         | 0.3   | 0.1      | \$80    |
| Misc Equipment (W)     |           | 0.8   |         | 2.3   | 0.8      | \$619   |
| Mobile Units (W)       |           | 0.0   |         | 0.0   | 0.0      | \$0     |
| 2. Decon/dismantle:    |           |       |         |       |          |         |
| Process Ductwork (W    | )         | 0.6   |         | 1.8   | 0.6      | \$508   |
| Air Filters & Fans (W) |           | 0.7   |         | 2.2   | 0.7      | \$611   |
| Water Filters, Pumps,  | Pipe (W)  | 1.0   |         | 3.1   | 1.0      | \$859   |
| Above-ground Tanks     | (W)       | 4.0   |         | 12.0  | 4.0      | \$3,304 |
| Washer Drain Trench    | & Pit (W) | 6.3   |         | 18.9  | 6.3      | \$5,212 |
|                        |           |       |         |       |          |         |

<sup>\*(</sup>D): Decontaminate most of the component to unrestricted release levels.

<sup>\*(</sup>W): Package the component and dispose at a low-level waste site.

### Table 3 (continued) Work Days

| Task  | Super-<br>visor | Fore-    | Tech-   | La-   | Calendar | Total   |
|---|-----------------|----------|---------|-------|----------|---------|
| Idak  | VISOI           | man      | nicians | horer | Days     | Cost    |
| 3. Decon/Dis-<br>mantle<br>Building   |                 |          |         |       |          |         |
| -Floors and Walls   |                 | 4.8      | 9.5     | 14.3  | 4.8      | \$6,181 |
| 4. Decon/Dis-<br>mantle<br>Service<br>Facilities  |                 |          |         |       |          |         |
| -Maintenance<br>Shop<br>-Decontamination<br>-Ventilation  |                 | See Page | F-2     |       |          |         |
| Systems<br>-Other   |                 |          |         |       |          |         |
| 5. Decon/Dis- mantle Waste Treatment Facilities and Storage Areas on the Site (Including exhume and package |                 | See Page | F-2     |       |          |         |
| contaminated soil)  |                 |          |         |       |          |         |
| -Remove Sewer<br>Discharge Pipe<br>Line to First<br>Manhole   |                 | 2.1      | 4.2     | 6.3   | 2.1      | \$2,721 |

| INS Corp.<br>Portsmouth, VA<br>05/29/97     |                 | Table 3<br>Work Days | (continue        | d)           |                  | Page F-4<br>Process 1 |
|---|-----------------|----------------------|------------------|--------------|------------------|-----------------------|
| Task  | Super-<br>visor | Fore-<br>man         | Tech-<br>nicians | La-<br>borer | Calendar<br>Days | Total<br>Cost         |
| 6. Monitor for compli-<br>reclean and remon |                 | 15                   | 30               | 30           | 15               | \$17,195              |
| 7. Total of Table 3                         |                 |                      |                  |              | 40               | \$40,679              |
|   |                 | Table 4              |                  |              |                  |                       |
| Equipment/Supply                            |                 |                      |                  | Quantity     | Rate             | Cost                  |
|   |                 |                      |                  | =====        |                  |                       |
| Mobile Decon Unit (T                        | ransport, C     | onsumable            | es)              | 0            | 14000            | \$0                   |
| Plasma arc welder re-                       | ntal per mo     | nth                  |                  | 4            | 350              | \$1,400               |
| Air compressor (Sulla                       | ir 185) rent    | al per mon           | ith              | 5            | 650              | \$3,250               |
| Five-head floor scabb                       | ler rental p    | er week              |                  | 4            | 450              | \$1,800               |
| Hand scabbler (need)                        | e scaler) p     | urchase              |                  | 1            | 350              | \$350                 |
| HEPA Vacuum Purch                           | ase             |                      |                  | 1            | 2200             | \$2,200               |
| Dozer with operator p                       | er hour         |                      |                  | 40           | 75               | \$3,000               |
|   |                 |                      |                  |              |                  |                       |
| Total Equipment Ren                         | tal and Pur     | chase                |                  |              |                  | \$12,000              |

# 3. Packaging, Shipping, and Disposal of Radioactive Wastes

|            |          |            | Table 5  |           |            |           |
|------------|----------|------------|----------|-----------|------------|-----------|
| Class A    |          |            |          |           | Unit       | Total     |
| (unstable) | Volume   | No. of     |          | Type of   | Cost of    | Container |
| Waste      | (m ^ 3)  | Containers |          | Container | Container  | Cost      |
| Total      | 17       | 7          |          | B-25      | \$300      | \$2,100   |
|            |          |            | Table 6  |           |            |           |
| Waste      |          | Unit       |          |           |            |           |
| Type=      |          | Cost for   |          | Round Tri | p          | Trans-    |
| Class A    | No. of   | Shipping   | ]        | Distance  |            | portation |
| unstable   | Shipment | incl. driv | er       | Shipped   | Vendor     | Cost      |
| Soil       | 1        | \$2.00     | per mile | 4714      | Envirocare | \$9,428   |
| Eqpt       | 2        | \$2.00     | per mile | 1066      | MSC        | \$4,264   |
|            | =====    |            |          |           |            | =====     |
| Total      | 3        |            |          |           |            | \$13,692  |

| INS Corp.   |    |
|-------------|----|
| Portsmouth, | VA |
| 05/29/97    |    |

Table 7

Page F-5 Process 1

| Direct | Burial | Charge, | including | all fees |
|--------|--------|---------|-----------|----------|
| Direct | Burial | Vendor  |           |          |

\$3,180 per m^3 Envirocare

| Class A Un<br>Soil and Co             |                                      |                                     |                           | Jnstable Wa<br>nt sent to W   |                           | ssor            |             |
|---------------------------------------|--------------------------------------|-------------------------------------|---------------------------|-------------------------------|---------------------------|-----------------|-------------|
| Burial<br>Volume<br>(m^3)             | Unit<br>Cost of<br>Burial<br>\$3,180 | Total<br>Burial<br>Cost<br>\$54,067 | Approx<br>Volume<br>(m^3) | Approx<br>Density<br>(lb/m^3) | Actual<br>Weight<br>(lbs) | Rate (\$/lb)    | Charge (\$) |
| Container in Direct burist No process | required<br>al                       | \$54,067                            |                           | liner needed                  |                           | \$1.40<br>nent. | \$81,889    |
|                                       |                                      |                                     |                           | Lab Waste                     | Analysis                  |                 | \$10,000    |
|                                       |                                      | Total: Bury                         | , Process,                | Lab Analys                    | is                        |                 | \$145,956   |

# 4. Restoration of Contaminated Areas of Facility Ground

5. Final Radiation Survey

|                      |           | Table 8<br>Work Days |      |          | Calendar | Total   |
|----------------------|-----------|----------------------|------|----------|----------|---------|
| Task                 | Sup'visor | Foreman              | H.P. | Clerical | Days     | Cost    |
| Backfill and Restore | Site      | 5                    | 5    |          | 5        | \$3,204 |

|                   |           | Table 9<br>Work Days |      |          | Calendar | Total   |
|-------------------|-----------|----------------------|------|----------|----------|---------|
| Task              | Sup'visor | Foreman              | H.P. | Clerical | Days     | Cost    |
| Survey and Report |           | 8                    | 3    | 3        | 8        | \$3,439 |

6. Site Stabilization, Long-Term Surveillance (if applicable)

### Table 10 Work Days

| Task              | Supervisor                  | Foreman      | Clerical | Calendar<br>Days | Total<br>Cost |
|-------------------|-----------------------------|--------------|----------|------------------|---------------|
| Table 10 is not a | pplicable. Site will be fre | ee released. |          |                  | \$0           |

# Summary of Decommissioning Cost Estimates:

| Table 1: | Planning and Preparation            | \$36,504  |
|----------|-------------------------------------|-----------|
| Table 3: | Dismantling and Decontamination     | \$40,679  |
| Table 4: | Equipment Rental                    | \$12,000  |
| Table 5: | Containers for Radwaste             | \$2,100   |
| Table 6: | Transportation of Radwaste          | \$13,692  |
| Table 7: | Waste Processing/Disposal           | \$145,956 |
| Table 8: | Site Restoration                    | 03,204    |
| Table 9: | Final Radiation Survey              | \$3,439   |
|          | Site Stabilization and Surveillance | \$0       |
|          |                                     |           |
|          | Sub Total                           | \$257,574 |
|          | Contingency (25%)                   | \$64,393  |
|          | Final Total                         | \$321,967 |
|          |                                     |           |

| Prod | cess 1 | Applied to Soil Concrete, Rubble            | Calendar<br>Days | Calendar<br>Days | Waste (m ^ 3) | Waste (m ^ 3) |
|------|--------|---|------------------|------------------|---------------|---------------|
| Qty  | Unit   | Component                                   | per unit         | Total            | per Unit      | Total         |
| ==   | ==     |   |                  | =====            |               |               |
| 6.3  | m      | Concrete Drain Trenches & Soil Under        | 0.200            | 1.26             | 0.290         | 1.83          |
| 42   | m      | Soil Adjacent to Buried Sewer Line          | 0.030            | 1.26             | 0.050         | 2.10          |
| 2    | m      | Soil Adjacent to Sink Drains Under Floor    | 0.030            | 0.06             | 0.015         | 0.03          |
| 46   | m^2    | Concrete Pit Wall and Soil Behind (Note 5)  | 0.100            | 4.60             | 0.150         | 6.90          |
|      |        | Concrete Pit Bottom and Soil Under (Note 5) | 0.150            | 0.45             | 0.500         | 1.50          |
|      |        | Wall Area Likely Needing Decon (Note 1)     | 0.015            | 0.99             | 0.001         | 0.07          |
|      |        | Concrete Floor & Soil Underneath (Note 2)   | 0.030            | 1.65             | 0.060         | 3.30          |
|      |        | Conc. Floor, Surface Contam Only (Note 3)   | 0.010            | 2.13             | 0.006         | 1.28          |
|      |        | Sand from Sludge Drying Tanks               | 0.100            | 0.00             | 1.000         | 0.00          |
|      |        |   |                  |                  | 1150          |               |
|      |        |   |                  | 12.40            |               | 17.00         |
|      |        |   |                  | Days             |               | m^3           |

|     |     | Applied to Equipment                     | Calendar | Calendar | Waste    | Waste  |
|-----|-----|--|----------|----------|----------|--------|
|     |     | quipment, No Major Pretreatment          | Days     | Days     | Pounds   | Pounds |
|     |     | Component                                | per unit | Total    | per Unit | Total  |
| m m | m m |  | ====     |          |          | ====   |
| 2   | ea  | Large Washers, >200 lbs Cap'y            | 0.500    | 1.00     | 9000     | 18000  |
| 1   | ea  | Small Washers, <= 200 lbs Cap'y          | 0.250    | 0.25     | 3000     | 3000   |
| 0   | ea  | Large Dryers, >200 lbs Cap'y             | 0.500    | 0.00     | 7000     | 0      |
| 7   | ea  | Small Dryers, <=200 lbs Cap'y            | 0.250    | 1.75     | 1500     | 10500  |
| 1   | ea  | HEPA Exhaust Fans                        | 0.250    | 0.25     | 0        | 0      |
| 2   | ea  | Sorting Hoods                            | 0.250    | 0.50     | 2500     | 5000   |
| 2   | ea  | Laundry Monitors (ALM)                   | 0.250    | 0.50     | 3000     | 6000   |
| 1   | ea  | HEPA Filter Housings with Plenum         | 0.250    | 0.25     | 1700     | 1700   |
| 0   | ea  | Shaker Screen Water Filters (Note 6)     | 0.125    | 0.00     | 1500     | 0      |
| 0   | ea  | Compactors                               | 0.125    | 0.00     | 1200     | 0      |
| 1   | ea  | Floor Scales                             | 0.125    | 0.13     | 700      | 700    |
| . 1 | ea  | Personnel Monitors                       | 0.125    | 0.13     | 0        | 0      |
| 0   | ea  | Lint Collectors, Dry Type (Note 4)       | 0.250    | 0.00     | 600      | 0      |
| 0   | ea  | Bag or Respirator Dryers                 | 0.125    | 0.00     | 300      | 0      |
| 0   | ea  | Small Metal Tanks <600 gal               | 0.500    | 0.00     | 824      | 0      |
| 0   | ea  | Medium Metal Tanks 600-3000 gal          | 1.000    | 0.00     | 2410     | 0      |
| 2   | ea  | Large Metal Tanks >3000 gal (Note 5)     | 2.000    | 4.00     | 4418     | 8836   |
| 0   | ea  | Tanks, Poly or Fiberglass, <600 gal      | 0.500    | 0.00     | 208      | 0      |
| 0   | ea  | Tanks, Poly or Fiberglass, 600-3000 gal  | 1.000    | 0.00     | 609      | 0      |
| 0   | ea  | Tanks, Poly or Fiberglass, >3000 gal     | 2.000    | 0.00     | 1116     | 0      |
| 0   | ea  | Conveyors                                | 0.125    | 0.00     | 250      | 0      |
| 2   | ea  | Pumps                                    | 0.100    | 0.20     | 100      | 200    |
| 6   | ea  | Lab Benches, Sort & Fold Tables          | 0.100    | 0.60     | 80       | 480    |
| 0   | ea  | Sludge Drying Sand Bed (excl. sand)      | 0.250    | 0.00     | 1564     | 0      |
| 0   | ea  | Sludge Dryer with Filter Press           | 0.250    | 0.00     | 5000     | 0      |
| 16  | ea  | HEPA Filters, Metal Frame 24x24x12       | 0.015    | 0.24     | 40       | 640    |
| 0   | ea  | Mobile Units, 40' (excl. eqpt.)          | 2.000    | 0.00     | 2100     | 0      |
| 41  | m   | Process Ductwork                         | 0.015    | 0.62     | 60       | 2460   |
| 42  | m   | Buried Sewer Pipe (excl. soil)           | 0.020    | 0.84     | 18       | 756    |
| 42  | m   | In-plant Wastewater Pipe                 | 0.020    | 0.84     | 5        | 210    |
| 2   | m   | Sink Drain Lines Under Floor (excl soil) | 0.020    | 0.04     | 5        | 10     |
|     |     |  |          | =====    |          | =====  |
|     |     |  |          | 12.13    |          | 58492  |
|     |     |  |          | Days     |          | lbs    |
|     |     |  |          | Days     |          | 105    |

### Notes:

- 1 Walls likely needing decontamination typically include portions of these rooms: Water Treatment, Wash Room, Tank Farm The walls often need decon only on the low parts.
- 2 Rooms likely to require removal of concrete slab and soil underneath typically include parts of these rooms: Water Treatment, Waste Storage, Sort Room, Wash Room, Tank Farm, Tank Room
- 3 Rooms likely to require surface decontamination of concrete slab typically include these rooms: Storage, Loading Dock, Production Room, Mezzanine, Lab, Office
- 4 Count each wet lint collector as two dry lint collectors.
- 5 Count special tanks as follows: Morris lamella=2 large steel tanks. Columbia lamella=1 large steel tank. Morris stainless steel pit=1 large and one medium steel tank. Non stainless steel pits are to be counted as concrete pits (assumed to leak).
- 6 If shaker screen has an integral tank, count that tank as one medium steel tank.

### Process Descriptions:

Process 1: 4-person team. Remove equipment. Cut only as needed to help load it into the van. Ship to a waste segregator and processor. Charged by the pound.

Process 2: 4-person team. Remove and strip equipment in preparation for metal melt, removing controls, motor windings, and non-metallics. Ship to a metal melt facility.

Process 3: 6-person team. Remove and strip equipment; cut metal pieces into small accessible parts suitable for introduction into the mobile grit blaster and/or power washer. Survey and free release parts that are clean; ship remainder to waste processor or metal melt vendor.

05/28/97

# INS Corp. APPENDIX F Honolulu, HI COST ESTIMATING TABLES RECEIVED F-1 RECEIVED F-1 RECEIVED F-1

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1. Planning and Preparation

|      |  |                                     | Table 1<br>Work Days |      |          |                  |               |
|------|--|-------------------------------------|----------------------|------|----------|------------------|---------------|
| Task |  | Super-<br>visor                     | Foreman              | H.P. | Clerical | Calendar<br>Days | Total<br>Cost |
| 1.   | Prepare<br>Documenta<br>for Regulato<br>Agencies   |                                     | 10                   |      | 5        | 10               | \$7,191       |
| 2.   | Submit<br>Decommiss<br>Plan to regu  | -                                   | 10                   |      | 2        | 10               | \$5,682       |
| 3.   | Develop<br>Work Plans  | 4                                   | 8                    | 3    | 1        | 8                | \$6,607       |
| 4.   | Procure<br>Special Equ<br>ment   | uip-                                | 5                    |      |          | 5                | \$1,887       |
| 5.   | Staff Trainin  | ng                                  | 2                    | 5    | 2        | 5                | \$3,176       |
| 6.   | Study of Radiolog Condition of Facility (Incomolian and tail analysis or water analy applicable) | of the<br>luding<br>ings<br>ground- | 12                   | 12   | 1        | 12               | \$11,962      |
| 7.   | Other  |                                     |                      |      |          |                  |               |
| 8.   | Total  | 16                                  | 47                   | 20   | 11       | 50               | \$36,504      |

Table 2

| Unit Cost for Wor               | Worker Co | st Per        |           |       |
|---------------------------------|-----------|---------------|-----------|-------|
| Position Basic Salaries (\$/yr) |           | Overhead Rate | Year      | Day   |
| Supervisor                      | \$76,000  | 78%           | \$135,280 | \$541 |
| Foreman                         | \$53,000  | 78%           | \$94,340  | \$377 |
| Craftsman                       | \$33,000  | 78%           | \$58,740  | \$235 |
| Technician                      | \$30,000  | 78%           | \$53,400  | \$214 |
| Health Physicist                | \$60,000  | 78%           | \$106,800 | \$427 |
| Laborer                         | \$21,000  | 78%           | \$37,380  | \$150 |
| Clerical                        | \$20,000  | 78%           | \$35,600  | \$142 |

2. Decontamination/Dismantling of Radioactive Facility Components \*

For details, see Waste Volume Summary

Table 3 Work Days

|                        | Super-    | Fore- | Tech-   | La-   | Calendar | Total   |
|------------------------|-----------|-------|---------|-------|----------|---------|
| 1. Decon/dismantle:    | visor     | man   | nicians | borer | Days     | Cost    |
| Sorting Hoods (W)*     |           | 0.0   |         | 0.0   | 0.0      | \$0     |
| Lint Collectors (W)    |           | 0.5   |         | 1.5   | 0.5      | \$413   |
| Washers & Dryers (W)   |           | 1.3   |         | 3.8   | 1.3      | \$1,032 |
| Lab & Work Benches (   | W)        | 0.1   |         | 0.3   | 0.1      | \$83    |
| Sink Drain (W)         |           | 0.0   |         | 0.0   | 0.0      | \$0     |
| Misc Equipment (W)     |           | 0.1   |         | 0.4   | 0.1      | \$103   |
| Mobile Units (W)       |           | 0.0   |         | 0.0   | 0.0      | \$0     |
| 2. Decon/dismantle:    |           |       |         |       |          |         |
| Process Ductwork (W)   |           | 0.5   |         | 1.4   | 0.5      | \$372   |
| Air Filters & Fans (W) |           | 0.0   |         | 0.0   | 0.0      | \$0     |
| Water Filters, Pumps,  | Pipe (W)  | 1.1   |         | 3.4   | 1.1      | \$925   |
| Above-ground Tanks (   |           | 0.0   |         | 0.0   | 0.0      | \$0     |
| Washer Drain Trench    | & Pit (W) | 8.0   |         | 23.9  | 8.0      | \$6,574 |

\*(D): Decontaminate most of the component to unrestricted release levels.

\*(W): Package the component and dispose at a low-level waste site.

### Table 3 (continued) Work Days

|  | Cunar           | Far-         | Tools            |              |                  |               |
|--|-----------------|--------------|------------------|--------------|------------------|---------------|
| Task   | Super-<br>visor | Fore-<br>man | Tech-<br>nicians | La-<br>borer | Calendar<br>Days | Total<br>Cost |
| 3. Decon/Dis-<br>mantle<br>Building  |                 |              |                  |              |                  |               |
| -Floors and Walls  |                 | 1.5          | 2.9              | 4.4          | 1.5              | \$1,885       |
| 4. Decon/Dis-<br>mantle<br>Service<br>Facilities   |                 |              |                  |              |                  |               |
| -Maintenance<br>Shop<br>-Decontamination<br>-Ventilation                                     |                 | See Page     | F.2              |              |                  |               |
| Systems<br>-Other  |                 | ccorago      |                  |              |                  |               |
| 5. Decon/Dis-<br>mantle Waste<br>Treatment<br>Facilities and<br>Storage Areas<br>on the Site |                 | See Page     | F-2              |              |                  |               |
| (Including exhume<br>and package<br>contaminated<br>soil)                                    |                 |              |                  |              |                  |               |
| -Remove Sewer<br>Discharge Pipe<br>Line to First<br>Manhole                                  |                 | 2.7          | 5.3              | 8.0          | 2.7              | \$3,434       |

| INS Corp.<br>Honolulu, H<br>05/28/97    | 41                         | ,                   | Table 3<br>Work Days | (co: 'inued          | )                   |                  | Page F-4<br>Process 1 |
|---|----------------------------|---------------------|----------------------|----------------------|---------------------|------------------|-----------------------|
| Task                                    |                            | Super-<br>visor     | Fore-<br>man         | Tech-<br>nicians     | La-<br>borer        | Calendar<br>Days | Total<br>Cost         |
|   | for complia<br>and remonit |                     | 9                    | 18                   | 18                  | 9                | \$10,317              |
| 7. Total of                             | Table 3                    |                     |                      |                      |                     | 25               | \$25,139              |
|   |                            |                     | Table 4              |                      |                     |                  |                       |
| Equipment                               | /Supply                    |                     | 10010 4              |                      | Quantity            | Rate             | Cost                  |
| ====                                    |                            |                     |                      |                      | ====                | ====             | =====                 |
| Mobile Dec                              | con Unit (Tra              | ansport, Co         | nsumable             | es)                  | 0                   | 14000            | \$0                   |
|   | welder rent                |                     |                      |                      | 4                   | 350              | \$1,400               |
| Air compre                              | ssor (Sullain              | 185) renta          | al per mon           | th                   | 5                   | 650              | \$3,250               |
| Five-head                               | floor scabble              | er rental pe        | er week              |                      | 4                   | 450              | \$1,800               |
| Hand scab                               | bler (needle               | scaler) pu          | irchase              |                      | 1                   | 350              | \$350                 |
| HEPA Vac                                | uum Purcha                 | se                  |                      |                      | -1                  | 2200             | \$2,200               |
| Dozer with                              | operator pe                | r hour              |                      |                      | 40                  | 75               | \$3,000               |
|   |                            |                     |                      |                      |                     |                  |                       |
| Total Equip                             | oment Renta                | al and Purc         | hase                 |                      |                     |                  | \$12,000              |
| 3. Packag                               | ing, Shippin               | g, and Dis          | posal of R           | adioactive           | Wastes              |                  |                       |
|   |                            |                     | Table F              |                      |                     |                  |                       |
| Class A                                 |                            |                     | Table 5              |                      | Unit                |                  |                       |
| (unstable)                              | Volume                     | No. of              |                      | Tune of              | Unit                |                  | Total                 |
| Waste                                   | (m^3) (                    |                     |                      | Type of<br>Container | Cost of<br>Contains | D.P.             | Container             |
| *************************************** | (111 0)                    | JOHNAH 1013         |                      | Container            | Contain             | 01               | Cost                  |
| Total                                   | 20                         | 8                   |                      | B-25                 | \$300               |                  | \$2,400               |
|   |                            |                     | Table 6              |                      |                     |                  |                       |
| Waste                                   |                            | 7.1-5               |                      |                      |                     |                  |                       |
|   |                            | Unit                |                      |                      |                     |                  |                       |
| Type=<br>Class A                        | No of                      | Cost for            |                      | Round Tri            | P                   |                  | Trans-                |
| unstable                                | No. of<br>Shipment         | Shipping incl. driv |                      | Distance<br>Shipped  | Vendor              |                  | portation<br>Cost     |
| Soil                                    | 1                          | \$2.00              | per mile             | 1472                 | Environne           |                  | 60.044                |
| Eqpt                                    | 1                          | \$2.00              | per mile             | 4312                 | Envirocar           |                  | \$2,944<br>\$8,624    |
| malh,                                   |                            | ΨΕ.ΟΟ               | per mile             | 4012                 | WISC                |                  | \$0,024<br>=====      |
| Total                                   | 2                          | \$3,500             | per shipm            | ent, ocean           | freight             | \$7,000          | \$11,568              |

| INS Corp. |    |
|-----------|----|
| Honolulu, | HI |
| 05/28/97  |    |

Table 7

Page F-5 Process 1

\$96,161

| Direct | Burial | Charge, | including | all | fees |
|--------|--------|---------|-----------|-----|------|
| Direct | Burial | Vendor  |           |     |      |

\$3,180 per m^3 Envirocare

| Class A Unstable Waste<br>Soil and Concrete Rubble |                           | Class A Unstable Waste<br>Equipment sent to Waste Processor |                         |                           |                               |                           |              |                |  |
|--|---------------------------|---|-------------------------|---------------------------|-------------------------------|---------------------------|--------------|----------------|--|
|  | Burial<br>Volume<br>(m^3) | Unit<br>Cost of<br>Burial                                   | Total<br>Burial<br>Cost | Approx<br>Volume<br>(m^3) | Approx<br>Density<br>(lb/m^3) | Actual<br>Weight<br>(lbs) | Rate (\$/lb) | Charge<br>(\$) |  |
|  | 20.1                      | \$3,180   | \$63,916                | 32                        | 500                           | 15889                     | \$1.40       | \$22,245       |  |
|  | Container Direct buris    | al  |                         | No conta                  | iner needec                   | for equipn                | nent.        |                |  |
|  |                           |   |                         |                           | Lab Waste                     | Analysis                  |              | \$10,000       |  |

Total: Bury, Process, Lab Analysis

Table 8

### 4. Restoration of Contaminated Areas of Facility Ground

Work Days

Calendar Total
Tack Sup'visor Foreman H.P. Clerical Days Cost

Backfill and Restore Site 5 5 \$3,204

### 5. Final Radiation Survey

|                   |           | Table 9<br>Work Days |      |          | Calendar Tot |         |  |
|-------------------|-----------|----------------------|------|----------|--------------|---------|--|
| Task              | Sup'visor | Foreman              | H.P. | Clerical | Days         | Cost    |  |
| Survey and Report |           | 8                    | 3    | 3        | 8            | \$3,439 |  |

6. Site Stabilization, Long-Term Surveillance (if applicable)

Table 10 Work Days

| Task              | Supervisor                  | Foreman      | Clerical | Calendar<br>Days | Total<br>Cost |  |
|-------------------|-----------------------------|--------------|----------|------------------|---------------|--|
| Table 10 is not a | pplicable. Site will be fre | ee released. |          |                  | \$0           |  |

# Summary of Decommissioning Cost Estimates:

| Table 1:  | Planning and Preparation        | \$36,504  |
|-----------|---------------------------------|-----------|
| Table 3:  | Dismantling and Decontamination | \$25,139  |
| Table 4:  | Equipment Rental                | \$12,000  |
| Table 5:  | Containers for Radwaste         | \$2,400   |
| Table 6:  | Transportation of Radwaste      | \$18,568  |
| Table 7:  | Waste Processing/Disposal       | \$96,161  |
| Table 8:  | Site Restoration                | \$3,204   |
| Table 9:  | Final Radiation Survey          | \$3,439   |
| Table 10: |                                 | \$0       |
|           |                                 | =====     |
|           | Sub Total                       | \$197,414 |
|           | Contingency (25%)               | \$49,354  |
|           | Final Total                     | \$246,768 |

| Proc | cess 1 | Applied to Soil, Concrete, Rubble           | Calendar<br>Days | Calendar<br>Days | Waste (m ^ 3) | Waste (m ^ 3) |
|------|--------|---|------------------|------------------|---------------|---------------|
| Qty  | Unit   | Component                                   | per unit         | Total            | per Unit      | Total         |
| ==   | ==     |   |                  |                  | =====         |               |
| 6.3  | m      | Concrete Drain Trenches & Soil Under        | 0.200            | 1.26             | 0.290         | 1.83          |
| 53   | m      | Soil Adjacent to Buried Sewer Line          | 0.030            | 1.59             | 0.050         | 2.65          |
| 0    | m      | Soil Adjacent to Sink Drains Under Floor    | 0.030            | 0.00             | 0.015         | 0.00          |
| 49   | m^2    | Concrete Pit Wall and Soil Behind (Note 5)  | 0.100            | 4.90             | 0.150         | 7.35          |
| 12   | m^2    | Concrete Pit Bottom and Soil Under (Note 5) | 0.150            | 1.80             | 0.500         | 6.00          |
| 9    | m^2    | Wall Area Likely Needing Decon (Note 1)     | 0.015            | 0.14             | 0.001         | 0.01          |
| 35   | m^2    | Concrete Floor & Soil Underneath (Note 2)   | 0.030            | 1.05             | 0.060         | 2.10          |
|      |        | Conc. Floor, Surface Contam Only (Note 3)   | 0.010            | 0.27             | 0.006         | 0.16          |
| 0    |        | Sand from Sludge Drying Tanks               | 0.100            | 0.00             | 1.000         | 0.00          |
|      |        |   |                  |                  |               |               |
|      |        |   |                  | 11.01            |               | 20.10         |
|      |        |   |                  | Days             |               | m^3           |
|      |        |   |                  |                  |               |               |

| Remove Equipment, No Major Pretreatment  |     |    | Applied to Equipment                     | Calendar | Calendar | Waste    | Waste  |
|--|-----|----|--|----------|----------|----------|--------|
| 0 ea Large Washers, >200 lbs Cap'y   |     |    |  |          |          |          | Pounds |
| 0 ea         Large Washers, > 200 lbs Cap'y         0.500         0.00         9000         0           2 ea         Small Washers, < = 200 lbs Cap'y  |     |    |  | per unit | Total    | per Unit | Total  |
| 2 ea Small Washers, <=200 lbs Cap'y  |     |    |  |          |          | ====     | =====  |
| 0 ea         Large Dryers, >200 lbs Cap'y         0.500         0.00         7000         0           3 ea         Small Dryers, <=200 lbs Cap'y   |     |    |  |          |          | 9000     | 0      |
| 3 ea Small Dryers, <=200 lbs Cap'y   |     |    |  |          | 0.50     | 3000     | 6000   |
| 0 ea         HEPA Exhaust Fans         0.250         0.00         0         0           0 ea         Sorting Hoods         0.250         0.00         2500         0           0 ea         Laundry Monitors (ALM)         0.250         0.00         3000         0           0 ea         HEPA Filter Housings with Plenum         0.250         0.00         1700         0           0 ea         Shaker Screen Water Filters (Note 6)         0.125         0.00         1500         0           0 ea         Compactors         0.125         0.00         1200         0           1 ea         Floor Scales         0.125         0.00         1200         0           0 ea         Personnel Monitors         0.125         0.00         0         0           0 ea         Personnel Monitors         0.125         0.00         0         0           2 ea         Lint Collectors, Dry Type (Note 4)         0.250         0.50         600         1200           0 ea         Bag or Respirator Dryers         0.125         0.00         300         0           0 ea         Small Metal Tanks <600 gal  |     |    |  | 0.500    | 0.00     | 7000     | 0      |
| 0 ea Sorting Hoods 0 ea Laundry Monitors (ALM) 0 ea HEPA Filter Housings with Plenum 0 .250  | - 1 |    |  | 0.250    | 0.75     | 1500     | 4500   |
| 0 ea         Laundry Monitors (ALM)         0.250         0.00         3000         0           0 ea         HEPA Filter Housings with Plenum         0.250         0.00         1700         0           0 ea         Shaker Screen Water Filters (Note 6)         0.125         0.00         1500         0           0 ea         Compactors         0.125         0.00         1200         0           1 ea         Floor Scales         0.125         0.13         700         700           0 ea         Personnel Monitors         0.125         0.00         0         0         0           2 ea         Lint Collectors, Dry Type (Note 4)         0.250         0.50         600         1200           0 ea         Bag or Respirator Dryers         0.125         0.00         300         0           0 ea         Small Metal Tanks <000 gal   |     |    |  | 0.250    | 0.00     | 0        | 0      |
| 0 ea         HEPA Filter Housings with Plenum         0.250         0.00         1700         0           0 ea         Shaker Screen Water Filters (Note 6)         0.125         0.00         1500         0           0 ea         Compactors         0.125         0.00         1200         0           1 ea         Floor Scales         0.125         0.13         700         700           0 ea         Personnel Monitors         0.125         0.00         0         0           2 ea         Lint Collectors, Dry Type (Note 4)         0.250         0.50         600         1200           0 ea         Bag or Respirator Dryers         0.125         0.00         300         0           0 ea         Small Metal Tanks <600 gal   |     |    |  | 0.250    | 0.00     | 2500     | 0      |
| 0 ea         Shaker Screen Water Filters (Note 6)         0.125         0.00         1500         0           0 ea         Compactors         0.125         0.00         1200         0           1 ea         Floor Scales         0.125         0.13         700         700           0 ea         Personnel Monitors         0.125         0.00         0         0           2 ea         Lint Collectors, Dry Type (Note 4)         0.250         0.50         600         1200           0 ea         Bag or Respirator Dryers         0.125         0.00         300         0           0 ea         Small Metal Tanks <600 gal   |     | ea |  | 0.250    | 0.00     | 3000     | 0      |
| 0 ea         Compactors         0.125         0.00         1200         0           1 ea         Floor Scales         0.125         0.13         700         700           0 ea         Personnel Monitors         0.125         0.00         0         0           2 ea         Lint Collectors, Dry Type (Note 4)         0.250         0.50         600         1200           0 ea         Bag or Respirator Dryers         0.125         0.00         300         0           0 ea         Small Metal Tanks <600 gal   |     | ea |  | 0.250    | 0.00     | 1700     | 0      |
| 1 ea Floor Scales 0.125 0.13 700 700 0 ea Personnel Monitors 0.125 0.00 0 0 0 2 ea Lint Collectors, Dry Type (Note 4) 0.250 0.50 600 1200 0 ea Bag or Respirator Dryers 0.125 0.00 300 0 0 ea Small Metal Tanks <600 gal 0 ea Medium Metal Tanks >300-3000 gal 1.000 0.00 2410 0 0 ea Large Metal Tanks >3000 gal (Note 5) 0 ea Tanks, Poly or Fiberglass, <600 gal 0 ea Tanks, Poly or Fiberglass, <600 gal 0 ea Tanks, Poly or Fiberglass, <600 gal 1.000 0.00 208 0 0 ea Tanks, Poly or Fiberglass, >3000 gal 1.000 0.00 609 0 0 ea Tanks, Poly or Fiberglass, >3000 gal 2.000 0.00 1116 0 0 ea Conveyors 0.125 0.00 250 0 0 ea Bag or Respirator Dryers 0.125 0.00 250 0 0 ea Tanks, Poly or Fiberglass, >3000 gal 0.500 0.00 1116 0 0 ea Conveyors 0.125 0.00 250 0 0 ea Bag or Respirator Dryers 0.100 0.50 100 500 1 ea Lab Benches, Sort & Fold Tables 0.100 0.10 80 80 0 ea Sludge Drying Sand Bed (excl. sand) 0 ea Sludge Dryer with Filter Press 0.250 0.00 5000 0 0 ea HEPA Filters, Metal Frame 24x24x12 0.015 0.00 40 0 0 ea Mobile Units, 40' (excl. eqpt.) 2.000 0.00 1564 60 1800 53 m Buried Sewer Pipe (excl. soil) 0 n Process Ductwork 0.015 0.45 60 1800 53 m Buried Sewer Pipe (excl. soil) 0 0.020 0.062 5 155 0 m Sink Drain Lines Under Floor (excl soil)   |     |    |  | 0.125    | 0.00     | 1500     | 0      |
| 0 ea         Personnel Monitors         0.125         0.00         0         0           2 ea         Lint Collectors, Dry Type (Note 4)         0.250         0.50         600         1200           0 ea         Bag or Respirator Dryers         0.125         0.00         300         0           0 ea         Small Metal Tanks<br>4 600 gal         0.500         0.00         824         0           0 ea         Medium Metal Tanks<br>500-3000 gal         1.000         0.00         2410         0           0 ea         Large Metal Tanks > 3000 gal (Note 5)         2.000         0.00         4418         0           0 ea         Tanks, Poly or Fiberglass,<br>600 or Fiberglass, 600-3000 gal         0.500         0.00         208         0           0 ea         Tanks, Poly or Fiberglass, 600-3000 gal         1.000         0.00         609         0           0 ea         Tanks, Poly or Fiberglass, 5000-3000 gal         2.000         0.00         1116         0           0 ea         Tanks, Poly or Fiberglass, 5000-3000 gal         2.000         0.00         1116         0           0 ea         Dumps         0.125         0.00         250         0         0           5 ea         Pumps         0.  | 0   | ea |  | 0.125    | 0.00     | 1200     | 0      |
| 2 ea Lint Collectors, Dry Type (Note 4) 0 ea Bag or Respirator Dryers 0 .125 0.00 300 0 0 ea Small Metal Tanks <600 gal 0 ea Medium Metal Tanks 600-3000 gal 1 .000 0.00 2410 0 0 ea Large Metal Tanks >3000 gal (Note 5) 2 .000 0.00 4418 0 0 ea Tanks, Poly or Fiberglass, <600 gal 0 ea Tanks, Poly or Fiberglass, <600 gal 0 ea Tanks, Poly or Fiberglass, >3000 gal 1 .000 0.00 609 0 0 ea Tanks, Poly or Fiberglass, >3000 gal 2 .000 0.00 1116 0 0 ea Conveyors 0 .125 0.00 250 0 0 ea Conveyors 0 .125 0.00 250 0 0 ea Pumps 0 .100 0.50 100 500 1 ea Lab Benches, Sort & Fold Tables 0 ea Sludge Drying Sand Bed (excl. sand) 0 ea Sludge Dryer with Filter Press 0 .250 0.00 1564 0 0 ea Mobile Units, 40' (excl. eqpt.) 2 .000 0.00 1.06 18 954 31 m In-plant Wastewater Pipe 0 .020 0.00 5 0.00 5 0 6 0 0.00 5 0.00 6 0 0.00 5 0.00 6 0 0.00 5 0.00 6 0 0.00 6 0.0 | 1   | ea |  | 0.125    | 0.13     | 700      | 700    |
| 0 ea         Bag or Respirator Dryers         0.125         0.00         300         0           0 ea         Small Metal Tanks <600 gal   |     | ea |  | 0.125    | 0.00     | 0        | 0      |
| 0 ea         Small Metal Tanks < 600 gal   | 2   | ea |  | 0.250    | 0.50     | 600      | 1200   |
| 0 ea         Medium Metal Tanks 500-3000 gal         1.000         0.00         2410         0           0 ea         Large Metal Tanks > 3000 gal (Note 5)         2.000         0.00         4418         0           0 ea         Tanks, Poly or Fiberglass, < 600 gal  | 0   | ea | Bag or Respirator Dryers                 | 0.125    | 0.00     | 300      | 0      |
| 0 ea         Large Metal Tanks > 3000 gal (Note 5)         2.000         0.00         4418         0           0 ea         Tanks, Poly or Fiberglass, <600 gal  | 0   | ea | Small Metal Tanks < 600 gal              | 0.500    | 0.00     | 824      | 0      |
| 0 ea Tanks, Poly or Fiberglass, <600 gal   | 0   | ea |  | 1.000    | 0.00     | 2410     | 0      |
| 0 ea         Tanks, Poly or Fiberglass, 600-3000 gal         1.000         0.00         609         0           0 ea         Tanks, Poly or Fiberglass, >3000 gal         2.000         0.00         1116         0           0 ea         Conveyors         0.125         0.00         250         0           5 ea         Pumps         0.100         0.50         100         500           1 ea         Lab Benches, Sort & Fold Tables         0.100         0.10         80         80           0 ea         Sludge Drying Sand Bed (excl. sand)         0.250         0.00         1564         0           0 ea         Sludge Dryer with Filter Press         0.250         0.00         5000         0           0 ea         HEPA Filters, Metal Frame 24x24x12         0.015         0.00         40         0           0 ea         Mobile Units, 40' (excl. eqpt.)         2.000         0.00         2100         0           30 m         Process Ductwork         0.015         0.45         60         1800           53 m         Buried Sewer Pipe (excl. soil)         0.020         0.62         5         155           0 m         Sink Drain Lines Under Floor (excl soil)         0.020         0.00         5  | 0   | ea | Large Metal Tanks > 3000 gal (Note 5)    | 2.000    | 0.00     | 4418     | 0      |
| 0 ea       Tanks, Poly or Fiberglass, >3000 gal       2.000       0.00       1116       0         0 ea       Conveyors       0.125       0.00       250       0         5 ea       Pumps       0.100       0.50       100       500         1 ea       Lab Benches, Sort & Fold Tables       0.100       0.10       80       80         0 ea       Sludge Drying Sand Bed (excl. sand)       0.250       0.00       1564       0         0 ea       Sludge Dryer with Filter Press       0.250       0.00       5000       0         0 ea       HEPA Filters, Metal Frame 24x24x12       0.015       0.00       40       0         0 ea       Mobile Units, 40' (excl. eqpt.)       2.000       0.00       2100       0         30 m       Process Ductwork       0.015       0.45       60       1800         53 m       Buried Sewer Pipe (excl. soil)       0.020       1.06       18       954         31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0  | 0   | ea | Tanks, Poly or Fiberglass, <600 gal      | 0.500    | 0.00     | 208      | 0      |
| 0 ea         Conveyors         0.125         0.00         250         0           5 ea         Pumps         0.100         0.50         100         500           1 ea         Lab Benches, Sort & Fold Tables         0.100         0.10         80         80           0 ea         Sludge Drying Sand Bed (excl. sand)         0.250         0.00         1564         0           0 ea         Sludge Dryer with Filter Press         0.250         0.00         5000         0           0 ea         HEPA Filters, Metal Frame 24x24x12         0.015         0.00         40         0           0 ea         Mobile Units, 40' (excl. eqpt.)         2.000         0.00         2100         0           30 m         Process Ductwork         0.015         0.45         60         1800           53 m         Buried Sewer Pipe (excl. soil)         0.020         1.06         18         954           31 m         In-plant Wastewater Pipe         0.020         0.62         5         155           0 m         Sink Drain Lines Under Floor (excl soil)         0.020         0.00         5         0  | 0   | ea | Tanks, Poly or Fiberglass, 600-3000 gal  | 1.000    | 0.00     | 609      | 0      |
| 5 ea       Pumps       0.100       0.50       100       500         1 ea       Lab Benches, Sort & Fold Tables       0.100       0.10       80       80         0 ea       Sludge Drying Sand Bed (excl. sand)       0.250       0.00       1564       0         0 ea       Sludge Dryer with Filter Press       0.250       0.00       5000       0         0 ea       HEPA Filters, Metal Frame 24x24x12       0.015       0.00       40       0         0 ea       Mobile Units, 40' (excl. eqpt.)       2.000       0.00       2100       0         30 m       Process Ductwork       0.015       0.45       60       1800         53 m       Buried Sewer Pipe (excl. soil)       0.020       1.06       18       954         31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0  | 0   | ea | Tanks, Poly or Fiberglass, >3000 gal     | 2.000    | 0.00     | 1116     | 0      |
| 1 ea       Lab Benches, Sort & Fold Tables       0.100       0.10       80       80         0 ea       Sludge Drying Sand Bed (excl. sand)       0.250       0.00       1564       0         0 ea       Sludge Dryer with Filter Press       0.250       0.00       5000       0         0 ea       HEPA Filters, Metal Frame 24x24x12       0.015       0.00       40       0         0 ea       Mobile Units, 40' (excl. eqpt.)       2.000       0.00       2100       0         30 m       Process Ductwork       0.015       0.45       60       1800         53 m       Buried Sewer Pipe (excl. soil)       0.020       1.06       18       954         31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0  | 0   | ea | Conveyors                                | 0.125    | 0.00     | 250      | 0      |
| 0 ea       Sludge Drying Sand Bed (excl. sand)       0.250       0.00       1564       0         0 ea       Sludge Dryer with Filter Press       0.250       0.00       5000       0         0 ea       HEPA Filters, Metal Frame 24x24x12       0.015       0.00       40       0         0 ea       Mobile Units, 40' (excl. eqpt.)       2.000       0.00       2100       0         30 m       Process Ductwork       0.015       0.45       60       1800         53 m       Buried Sewer Pipe (excl. soil)       0.020       1.06       18       954         31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0         4.61       15889   | 5   | ea | Pumps                                    | 0.100    | 0.50     | 100      | 500    |
| 0 ea       Sludge Dryer with Filter Press       0.250       0.00       5000       0         0 ea       HEPA Filters, Metal Frame 24x24x12       0.015       0.00       40       0         0 ea       Mobile Units, 40' (excl. eqpt.)       2.000       0.00       2100       0         30 m       Process Ductwork       0.015       0.45       60       1800         53 m       Buried Sewer Pipe (excl. soil)       0.020       1.06       18       954         31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0         =====       4.61       15889  | 1   | ea | Lab Benches, Sort & Fold Tables          | 0.100    | 0.10     | 80       | 80     |
| 0 ea       HEPA Filters, Metal Frame 24x24x12       0.015       0.00       40       0         0 ea       Mobile Units, 40' (excl. eqpt.)       2.000       0.00       2100       0         30 m       Process Ductwork       0.015       0.45       60       1800         53 m       Buried Sewer Pipe (excl. soil)       0.020       1.06       18       954         31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0         =====       4.61       15889  | 0   | ea | Sludge Drying Sand Bed (excl. sand)      | 0.250    | 0.00     | 1564     | 0      |
| 0 ea       Mobile Units, 40' (excl. eqpt.)       2.000       0.00       2100       0         30 m       Process Ductwork       0.015       0.45       60       1800         53 m       Buried Sewer Pipe (excl. soil)       0.020       1.06       18       954         31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0         =====       4.61       15889  | 0   | ea | Sludge Dryer with Filter Press           | 0.250    | 0.00     | 5000     | 0      |
| 30 m       Process Ductwork       0.015       0.45       60       1800         53 m       Buried Sewer Pipe (excl. soil)       0.020       1.06       18       954         31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0         =====       4.61       15889   | 0   | ea | HEPA Filters, Metal Frame 24x24x12       | 0.015    | 0.00     | 40       | 0      |
| 53 m       Buried Sewer Pipe (excl. soil)       0.020       1.06       18       954         31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0         ====       4.61       15889   | 0   | ea | Mobile Units, 40' (excl. eqpt.)          | 2.000    | 0.00     | 2100     | 0      |
| 31 m       In-plant Wastewater Pipe       0.020       0.62       5       155         0 m       Sink Drain Lines Under Floor (excl soil)       0.020       0.00       5       0         =====       4.61       15889  | 30  | m  | Process Ductwork                         | 0.015    | 0.45     | 60       | 1800   |
| 0 m Sink Drain Lines Under Floor (excl soil) 0.020 0.00 5 0 ===== 4.61 15889   | 53  | m  | Buried Sewer Pipe (excl. soil)           | 0.020    | 1.06     | 18       | 954    |
| 4.61 15889   | 31  | m  | In-plant Wastewater Pipe                 | 0.020    | 0.62     | 5        | 155    |
| 4.61 15889   | 0   | m  | Sink Drain Lines Under Floor (excl soil) | 0.020    | 0.00     | 5        | 0      |
|  |     |    |  |          | ====     |          | ====   |
| Days lbs   |     |    |  |          | 4.61     |          | 15889  |
|  |     |    |  |          | Days     |          | lbs    |

#### Notes:

- 1 Walls likely needing decontamination typically include portions of these rooms: Water Treatment, Wash Room, Tank Farm The walls often need decon only on the low parts.
- 2 Rooms likely to require removal of concrete slab and soil underneath typically include parts of these rooms: Water Treatment, Waste Storage, Sort Room, Wash Room, Tank Farm, Tank Room
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- 4 Count each wet lint collector as two dry lint collectors.
- 5 Count special tanks as follows: Morris lamella=2 large steel tanks. Columbia lamella=1 large steel tank. Morris stainless steel pit=1 large and one medium steel tank. Non stainless steel pits are to be counted as concrete pits (assumed to leak).
- 6 If shaker screen has an integral tank, count that tank as one medium steel tank.

### Process Descriptions:

Process 1: 4-person team. Remove equipment. Cut only as needed to help load it into the van. Ship to a waste segregator and processor. Charged by the pound.

Process 2: 4-person team. Remove and strip equipment in preparation for metal melt, removing controls, motor windings, and non-metallics. Ship to a metal melt facility.

Process 3: 6-person team. Remove and strip equipment; cut metal pieces into small accessible parts suitable for introduction into the mobile grit blaster and/or power washer. Survey and free release parts that are clean; ship remainder to waste processor or metal melt vendor.



June 3, 1997

Robert Gallaghar Radiation Control Program Commonwealth of Massachussetts 305 South Street Jamaica Plain, MA, 02130

Re: License NRC-20-03529-01 Springfield, MA \$752,623

note: this is now are state

Dear Mr. Gallaghar:

In order to account for inflation and changes to our facility, we periodically review our Decommissioning Funding Plan and update the decommissioning cost estimate. Attached is the new estimate for the INS nuclear laundry facility referenced above.

The surety we provide to your agency for future decommissioning takes the form of a bank Letter of Credit. This instrument is currently in force and is automatically renewed on its anniversary date, without adjustment to the amount, unless we notify the bank that the beneficiary (the regulatory agency) has authorized that it be amended.

Please review the attached information. When we get your written approval, we will instruct our bank to amend the Letter of Credit. They will then send it to your agency as soon as it is updated. Please call Mike Fuller or me if there are any questions.

Sincerely,

Les Case

Corporate Engineer

INS Corporation

cc: M. Fuller, INS

H. Murphy, UniFirst

B. Prange, NRC Region IV

Attachment: Cost estimate in NRC-recommended format

# 1. Planning and Preparation

| Task |   | Super-  | Table 1<br>Work Days | H.P. | Clerical | Calendar<br>Days | Total<br>Cost |
|------|---|---|----------------------|------|----------|------------------|---------------|
| 1.   | Prepare<br>Documenta<br>for Regulat<br>Agencies   | £<br>ation  | 10                   |      | 5        | 10               | \$7,191       |
| 2.   | Submit<br>Decommiss<br>Plan to reg  | 100   | 10                   |      | 2        | 10               | \$5,682       |
| 3.   | Develop<br>Work Plans   | 4   | 8                    | 3    | - 1      | 8                | \$6,607       |
| 4.   | Procure<br>Special Eq<br>ment   | uip-  | 5                    |      |          | 5                | \$1,887       |
| 5.   | Staff Trainin   | ng  | 2                    | 5    | 2        | 5                | \$3,176       |
| 6.   | Study of Radiolog Condition of Facility (Indisoil and tai analysis or water analy applicable) | of the<br>cluding<br>lings<br>ground-<br>ysis, if | 12                   | 12   | 1        | 12               | \$11,962      |
| 7.   | Other   |   |                      |      |          |                  |               |
| 8.   | Total   | 16  | 47                   | 20   | - 11     | 50               | \$36,504      |

| Unit Cost for Worke |                 | Contractors)  | Worker Cost Per |       |  |
|---------------------|-----------------|---------------|-----------------|-------|--|
| Position Basic Sa   | ularies (\$/yr) | Overhead Rate | Year            | Day   |  |
| Supervisor          | \$76,000        | 78%           | \$135,280       | \$541 |  |
| Foreman             | \$53,000        | 78%           | \$94,340        | \$377 |  |
| Craftsman           | \$33,000        | 78%           | \$58,740        | \$235 |  |
| Technician          | \$30,000        | 78%           | \$53,400        | \$214 |  |
| Health Physicist    | \$60,000        | 78%           | \$106,800       | \$427 |  |
| Laborer             | \$21,000        | 78%           | \$37,380        | \$150 |  |
| Clerical            | \$20,000        | 78%           | \$35,600        | \$142 |  |

2. Decontamination/Dismantling of Radioactive Facility Components \*

For details, see Waste Volume Summary

Table 3 Work Days

|                         | Super-   | Fore- | Tech-   | La-   | Calendar | Total    |
|-------------------------|----------|-------|---------|-------|----------|----------|
| 1. Decon/dismantle:     | visor    |       |         |       |          | Total    |
| 1. Doodiyalamande.      | V1501    | man   | nicians | borer | Days     | Cost     |
| Sorting Hoods (D)*      |          | 2.2   | 4.3     | 6.5   | 2.2      | \$2,808  |
| Lint Collectors (D)     |          | 1.2   | 2.3     | 3.5   | 1.2      | \$1,512  |
| Washers & Dryers (D)    |          | 44.7  | 89.3    | 134.0 | 44.7     | \$57,859 |
| Lab & Work Benches (I   | D)       | 6.9   | 13.9    | 20.8  | 6.9      | \$8,984  |
| Sink Drain (D)          |          | 0.9   | 1.7     | 2.6   | 0.9      | \$1,123  |
| Misc Equipment (D)      |          | 9.7   | 19.3    | 29.0  | 9.7      | \$12,505 |
| Mobile Units (D)        |          | 0.0   | 0.0     | 0.0   | 0.0      | \$0      |
| 2. Decon/dismantle:     |          |       |         |       |          |          |
| Process Ductwork (D)    |          | 5.3   | 10.7    | 16.0  | 5.3      | \$6,907  |
| Air Filters & Fans (D)  |          | 3.7   | 7.4     | 11.0  | 3.7      | \$4,769  |
| Water Filters, Pumps, F | Pipe (D) | 16.6  | 33.1    | 49.7  | 16.6     | \$21,454 |
| Above-ground Tanks (I   |          | 23.9  | 47.8    | 71.8  | 23.9     | \$30,992 |
| Washer Drain Trench 8   |          | 10.6  | 21.2    | 31.8  | 10.6     | \$13,736 |

<sup>\*(</sup>D): Decontaminate most of the component to unrestricted release levels.

<sup>\*(</sup>W): Package the component and dispose at a low-level waste site.

# Table 3 (continued) Work Days

| Task   | Super-<br>visor | Fore-<br>man | Tech-<br>niclans | La-<br>borer | Calendar<br>Days | Total<br>Cost |
|--|-----------------|--------------|------------------|--------------|------------------|---------------|
| 3. Decon/Dis-<br>mantle<br>Building  |                 |              |                  |              |                  |               |
| -Floors and Walls  |                 | 29.0         | 58.0             | 87.0         | 29.0             | \$37,579      |
| 4. Decon/Dis-<br>mantle<br>Service<br>Facilities   |                 |              |                  |              |                  |               |
| -Maintenance Shop -Decontamination -Ventilation Systems  |                 | See Page     | F-2              |              |                  |               |
| -Other   |                 |              |                  |              |                  |               |
| 5. Decon/Dismantle Waste Treatment Facilities and Storage Areas on the Site (Including exhume and package contaminated soil) |                 | See Page     | F-2              |              |                  |               |
| -Remove Sewer<br>Discharge Pipe<br>Line to First<br>Manhole  |                 | 6.1          | 12.1             | 18.2         | 6.1              | \$7,861       |

| INS Corp.<br>Springfield<br>06/03/97   | i, MA   |                 | Table 3<br>Work Days | (continued       | )          |          | Page F-4<br>Process 3 |   |
|--|---|-----------------|----------------------|------------------|------------|----------|-----------------------|---|
| Task                                   |   | Super-<br>visor | Fore-<br>man         | Tech-<br>nicians | La-        | Calendar | Total                 |   |
|  |   | ¥1001           | HIGH                 | nicians          | borer      | Days     | Cost                  |   |
|  | r for compli<br>and remon   |                 | 18                   | 36               | 36         | 18       | \$20,634              |   |
| 7. Total of                            | Table 3   |                 |                      |                  |            | 179      | \$228,723             |   |
|  |   |                 | Telelena             |                  |            |          |                       |   |
| Equipmen                               | t/Supply  |                 | Table 4              |                  | 0          |          |                       |   |
| Edabulet                               |   |                 |                      |                  | Quantity   | Rate     | Cost                  |   |
|  |   | ransport, Co    | oneumable            | /6/              |            |          |                       |   |
|  |   | ntal per moi    |                      | (4)              | 4          | 14000    | \$14,000              |   |
|  |   |                 |                      | th               | 5          | 350      | \$1,400               |   |
|  | Air compressor (Sullair 185) rental per month<br>Five-head floor scabbler rental per week |                 |                      |                  |            | 650      | \$3,250               |   |
| Hand scabbler (needle scaler) purchase |   |                 |                      |                  | 4          | 450      | \$1,800               |   |
| HEPA Vacuum Purchase                   |   |                 |                      |                  |            | 350      | \$350                 |   |
|  | operator p  |                 |                      |                  | 40         | 2200     | \$2,200               |   |
| 00201 11111                            | i operator p  | zer riour       |                      |                  | 40         | 75       | \$3,000               |   |
| Total Equi                             | pment Ren   | tal and Purc    | hase                 |                  |            |          | \$26,000              |   |
| 3. Packag                              | jing, Shippi  | ng, and Dis     | posal of R           | adioactive '     | Wastes     |          |                       |   |
|  |   |                 |                      |                  |            |          |                       |   |
|  |   |                 | Table 5              |                  |            |          |                       |   |
| Class A                                | Makana  |                 |                      |                  | Unit       |          | Total                 |   |
| (unstable)                             |   | No. of          |                      | Type of          | Cost of    |          | Container             | • |
| Waste                                  | (m ^ 3)   | Containers      |                      | Container        | Containe   | er       | Cost                  |   |
| Total                                  | 69  | 26              |                      | B-25             | \$300      |          | \$7,800               |   |
|  |   |                 | Table 6              |                  |            |          |                       |   |
|  |   |                 |                      | *                |            |          |                       |   |
| Waste                                  |   | Unit            |                      |                  |            |          |                       |   |
| Type=                                  |   | Cost for        |                      | Round Tri        | p          |          | Trans-                |   |
| Class A                                | No. of  | Shipping        |                      | Distance         |            |          | portation             |   |
| unstable                               | Shipment  | incl. driv      | er                   | Shipped          | Vendor     |          | Cost                  |   |
| Soil                                   | 3   | \$2.00          | per mile             | 4802             | Envirocare | 9        | \$28,812              |   |
| Eqpt                                   | 1   | \$2.00          | per mile             | 1694             | MSC        | - 441-   | \$3,388               |   |
|  |   |                 |                      |                  |            |          | =====                 |   |
| Total                                  | 4   |                 |                      |                  |            |          | \$32,200              |   |
|  |   |                 |                      |                  |            |          | 4-0,600               |   |

ILIO A

Direct Burial Charge, including all fees Direct Burial Vendor

\$3,180 per m^3 Envirocare

|        | Unstable Was<br>Concrete Ru |       |
|--------|-----------------------------|-------|
| Burial | Unit                        | Total |

Class A Unstable Waste Equipment sent to Waste Processor

| Burial<br>Volume<br>(m^3) | Unit<br>Cost of<br>Burial | Total<br>Burial<br>Cost | Approx<br>Volume<br>(m ^ 3) | Approx<br>Density<br>(lb/m^3) | Actual<br>Weight<br>(lbs) | Rate (\$/lb) | Charge<br>(\$) |
|---------------------------|---------------------------|-------------------------|-----------------------------|-------------------------------|---------------------------|--------------|----------------|
| 68.6                      | \$3,180                   | \$218,067               | 52                          | 500                           | 25829                     | \$1.40       | \$36,161       |

Container required Direct burial No processing No container needed for equipment.

| 1 miles | 101  | A A   | 40.00 | and the |
|---------|------|-------|-------|---------|
| Lab     | vvas | ite A | maiy  | SIS     |

\$10,000

Total: Bury, Process, Lah Analysis

\$264,228

# 4. Restoration of Contaminated Areas of Facility Ground

Table 8 Work Days

| Task                 | Sup'visor | Foreman | H.P. | Clerical | Calendar<br>Days | Total<br>Cost |
|----------------------|-----------|---------|------|----------|------------------|---------------|
| Backfill and Restore | Site      | 5       | 5    |          | 5                | \$3,204       |

### 5. Final Radiation Survey

|                   |         | Table 9<br>Work Days |      |          | Calendar | Total   |  |
|-------------------|---------|----------------------|------|----------|----------|---------|--|
| Task Su           | p'visor | Foreman              | H.P. | Clerical | Days     | Cost    |  |
| Survey and Report |         | 8                    | 3    | 3        | 8        | \$3,439 |  |

# 6. Site Stabilization, Long-Term Surveillance (if applicable)

### Table 10 Work Days

| Task              | Supervisor                  | Foreman      | Clerical | Calendar<br>Days | Total<br>Cost |
|-------------------|-----------------------------|--------------|----------|------------------|---------------|
| Table 10 is not a | applicable. Site will be fr | ee released. |          |                  | \$0           |

# Summary:

| Table 1:  | Planning and Preparation  | \$36,504  |
|-----------|---|-----------|
| Table 3:  | Dismantling and Decontamination   | \$228,723 |
| Table 4:  | Equipment Rental  | \$26,000  |
| Table 5:  | ontainers for Radwaste  | \$7,800   |
| Table 6:  | Transportation of Radwaste  | \$32,200  |
| Table 7:  | Waste Processing/Disposal   | \$264,228 |
| Table 8:  | Site Restoration  | \$3,204   |
| Table 9:  | Final Radiation Survey  | \$3,439   |
| Table 10: | 3: Dismantling and Decontamination 4: Equipment Rental 5: Ontainers for Radwaste 6: Transportation of Radwaste 7: Waste Processing/Disposal 8: Site Restoration 9: Final Radiation Survey | \$0       |
|           |   |           |
|           | Sub Total   | \$602,098 |
|           | Contingency (25%)   | \$150,525 |
|           | Final Total   | 6750 600  |
|           | Titler ( Ctell  | \$752,623 |

| Process 1 Applied to Soil, Concrete, Rubble        | Calendar<br>Days | Calendar<br>Days | Waste (m ^ 3) | Waste (m ^ 3) |
|--|------------------|------------------|---------------|---------------|
| Qty Unit Component                                 | per unit         | Total            | per Unit      | Total         |
| 自然 公表 医阿拉拉拉拉拉拉拉拉拉拉拉拉拉拉拉拉拉                          |                  | 87.7188          |               |               |
| 21 m Concrete Drain Trenches & Soil Under          | 0.200            | 4.20             | 0.290         | 6.09          |
| 140 m Soil Adjacent to Buried Sewer Line           | 0.030            | 4.20             | 0.050         | 7.00          |
| 20 m Soil Adjacent to Sink Drains Under Floor      | 0.030            | 0.60             | 0.015         | 0.30          |
| 40 m^2 Concrete Pit Wall and Soil Behind (Note 5)  | 0.100            | 4.00             | 0.150         | 6.00          |
| 16 m^2 Concrete Pit Bottom and Soil Under (Note 5) | 0.150            | 2.40             | 0.500         | 8.00          |
| 80 m^2 Wall Area Likely Needing Decon (Note 1)     | 0.015            | 1.20             | 0.001         | 0.08          |
| 560 m^2 Concrete Floor & Soil Underneath (Note 2)  | 0.030            | 16.80            | 0.060         | 33.60         |
| *** m^2 Conc. Floor, Surface Contam Only (Note 3)  | 0.010            | 11.00            | 0.006         | 6.60          |
| 0.9 m ^ 3 Sand from Sludge Drying Tanks            | 0.100            | 0.09             | 1.000         | 0.90          |
|  |                  |                  |               |               |
|  |                  | 44.49            |               | 68.57         |
|  |                  | Days             |               | m^3           |
|  |                  |                  |               |               |

| Proce  | ess 3   | Applied to Equipment                     | Calendar       | Calendar | Mosts    |        |
|--------|---------|--|----------------|----------|----------|--------|
|        |         | arit Blast or Power Wash Decon           | Days           |          | Waste    | Waste  |
|        |         | Component                                | per unit       | Days     | Pounds   | Pounds |
|        | 201 201 |  | per unit       | Total    | per Unit | Total  |
| 4 6    | ea      | Large Washers, >200 lbs Cap'y            | 5.417          | 01.02    | 4700     |        |
|        | ea      | Small Washers, <=200 lbs Cap'y           | 3.233          | 21.67    | 1760     | 7040   |
|        | ea      | Large Dryers, >200 lbs Cap'y             |                | 3.23     | 560      | 560    |
|        | ea      | Small Dryers, <= 200 lbs Cap'y           | 5.500          | 16.50    | 1360     | 4080   |
|        | ea      | HEPA Exhaust Fans                        | 3.250<br>0.167 | 3.25     | 260      | 260    |
|        | ea      | Sorting Hoods                            |                | 0.83     | . 0      | 0      |
|        | ea      | Laundry Monitors (ALM)                   | 2.167          | 2.17     | 500      | 500    |
|        | ea      | HEPA Filter Housings with Plenum         | 1.233          | 7.40     | 140      | 840    |
|        | ea      | Shaker Screen Water Filters (Note 6)     | 2.167          | 2.17     | 340      | 340    |
| -      | ea      | Compactors                               | 1.125          | 1.12     | 300      | 300    |
|        | ea      | Floor Scales                             | 1.125          | 0.00     | 220      | 0      |
|        | ea      | Personnel Monitors                       | 1.083          | 2.17     | 70       | 140    |
|        | ea      | Lint Collectors, Dry Type (Note 4)       | 0.083          | 0.08     | 0        | 0      |
|        | ea      | Bag or Respirator Dryers                 | 1.167          | 1.17     | 110      | 110    |
|        | ea      |  | 0.625          | 0.00     | 60       | 0      |
| 100 10 |         | Small Metal Tanks <600 gal               | 0.583          | 0.00     | 165      | 0      |
|        | ea      | Medium Metal Tanks 600-3000 gal          | 1.167          | 2.33     | 482      | 964    |
|        | ea      | Large Metal Tanks >3000 gal (Note 5)     | 2.333          | 2.33     | 884      | 884    |
|        | ea      | Tanks, Poly or Fiberglass, <600 gal      | 0.583          | 0.58     | 42       | 42     |
|        | ea      | Tanks, Poly or Fiberglass, 600-3000 gal  | 1.167          | 2.33     | 122      | 244    |
| -      | ea      | Tanks, Poly or Fiberglass, >3000 gal     | 2.333          | 16.33    | 223      | 1562   |
|        | ea      | Conveyors                                | 1.125          | 0.00     | 25       | 0      |
|        | ea      | Pumps                                    | 0.067          | 0.80     | 100      | 1200   |
|        | ea      | Lab Benches, Sort & Fold Tables          | 0.267          | 6.93     | 4        | 104    |
|        | ea      | Sludge Drying Sand Bed (excl. sand)      | 0.667          | 0.00     | 626      | 0      |
|        | ea      | Sludge Dryer with Filter Press           | 1.208          | 1.21     | 1920     | 1920   |
| 20 6   |         | HEPA Filters, Metal Frame 24x24x12       | 0.034          | 0.68     | 8        | 160    |
|        | ea      | Mobile Units, 40' (excl. eqpt.)          | 6.333          | 0.00     | 420      | 0      |
| 130 (  |         | Process Ductwork                         | 0.041          | 5.33     | 12       | 1560   |
| 140 (  | m       | Buried Sewer Pipe (excl. soil)           | 0.013          | 1.87     | 18       | 2520   |
| 400 1  | m       | In-plant Wastewater Pipe                 | 0.033          | 13.33    | 1        | 400    |
| 20 1   | m       | Sink Drain Lines Under Floor (excl soil) | 0.013          | 0.27     | 5        | 100    |
|        |         |  |                |          |          |        |
|        |         |  |                | 116.09   |          | 25829  |
|        |         |  |                | Days     |          | lbs    |
|        |         |  |                |          |          |        |

### Notes:

- 1 Walls likely needing decontamination typically include portions of these rooms: Water Treatment, Wash Room, Tank Farm The walls often need decon only on the low parts.
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Process 2: 4-person team. Remove and strip equipment in preparation for metal melt, removing controls, motor windings, and non-metallics. Ship to a metal melt facility.

Process 3: 6-person team. Remove and strip equipment; cut metal pieces into small accessible parts suitable for introduction into the mobile grit blaster and/or power washer. Survey and free release parts that are clean; ship remainder to waste processor or metal melt vendor.